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Motoki Hiraoka

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EXAMINER

BAREFORD, KATHERINE A

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |  |                                       |  |
|------------------------------|--|---------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/530,516     | <b>Applicant(s)</b><br>HIRAOKA ET AL. |  |
|                              | <b>Examiner</b><br>Katherine A. Bareford | <b>Art Unit</b><br>1792               |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 9/3/08.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. The amendment of September 3, 2008 has been received and entered. With the entry of the amendment, claims 1-9 are pending for examination.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogisu et al (Japan 08-092752, hereinafter Ogisu) in view of Harada et al (Japan 01-092377, hereinafter Harada) and Asakura et al (Japan 10-088361, hereinafter Asakura).

Claims 1, 5: Ogisu teaches a method for pretreating before electroless plating.

Paragraph [0007]. A resin material is placed in contact with a first solution with the first solution containing ozone. Paragraphs [0007], [0014]. After treatment with the ozone solution, electroless plating occurs. Paragraph [0007].

Ogisu does not teach the limitations (1) that the ozone is in a concentration of about 10 ppm or more, or (2) that the contacting step is done while irradiating the resin material with ultraviolet rays of a wavelength from 150-200 nm. Regarding the first limitation, Ogisu does not explicitly teach the concentration of ozone employed in this method, however, it has been held, generally, that differences in concentration will not support the patentability of subject matter encompassed by the prior art unless there is evidence that such concentration is critical. See MPEP 2144.05. Also, "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). Therefore, it would have been obvious, and would have involved only routine experimentation to one having ordinary skill in the art at the time the present invention was made to have modified the method taught by Ogisu by utilizing a solution containing ozone at a concentration of 10 ppm or more, because it has been held that it is not inventive to discover the optimum or workable ranges by routine optimization.

Regarding the second limitation, while Ogisu does not teach the irradiating step while contacting the ozone solution, however, Ogisu does teach in paragraphs [0012]-

[0015] that the ozone treating step helps surface reforming and oxidation with the etching step to provide a recessed roughened surface that helps adsorb catalyst.

Harada teaches that it is known to oxidize and roughen a substrate using gaseous ozone before electroless plating (abstract and paragraphs [0006]--[0007]); and Harada further teaches that this process is accelerated by doing so while exposing the member to ultraviolet radiation, particularly at 253.7 nm, by helping to generate activated oxygen with strong oxidizability (paragraph [0007]). Furthermore, Asakura teaches that ultraviolet radiation treatment of a resin before electroless plating helps increase adhesion of the plating, by helping to oxidize and degrade the surface of the polymer (paragraphs [0006]--[0008]); as to the wavelength used Asakura teaches that it varies depending on the material of the polymer substrate and can be 200-400 nm, and in the case of polystyrene or ABS resin, for example, can be 160-400 nm (paragraph [0007]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ogisu to irradiate the resin material with ultraviolet rays while the resin material is in contact with the ozone as taught by Harada in order to accelerate the surface reforming and oxidation step, and to further modify Ogisu in view of Harada to optimize the wavelength used for irradiating based on the polymer substrate used as suggested by Asakura, because Harada teaches to particularly use 253.7 nm, but is not limited to this amount, as it is simply a preference, and Asakura teaches that the specific wavelength used to help oxidize and degrade a resin surface before electroless plating varies based on the polymer material of the substrate used

and can be 160-400 nm, which overlaps with that claimed, and In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976).

Although applicant asserts unexpected results summarized in Table 1 of the specification, these results are not commensurate in scope with these claims to show that the results occur over the entire claimed range (see MPEP 716.02(d)). For example (1) applicant claims a specific range of UV wavelength, but the examples have no indication of what the wavelength is, (2) applicant claims the range of ozone concentration to be "about 10 ppm or more", but the examples only show the use of 80 ppm, (3) applicant claims a resin material in general, but only uses an ABS substrate in the examples, (4) does not show points just inside and outside the claimed UV wavelength range or ozone concentration. Furthermore, the combination of ozone treatment and UV would be expected to have improved results, as discussed by Harada from the added acceleration of the process and the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Claims 2, 3, 6, 7: Asakura teaches the desire to further bring the resin material, after the UV treatment into contact with a second solution with an alkaline component and a nonionic surfactant to help provide the high adhesion. Paragraphs [0005]--[0006].

Claims 4, 8: Ogisu teaches that the first solution with the ozone can also contain an inorganic polar solvent – water. Paragraph [0007] (aqueous ozone solution).

Claim 9: Ogisu teaches that after the electroless plating step, the resin material can be subjected to electroplating. Paragraphs [0010], [0016].

5. Aviram et al (US 4440801) also notes the use of UV treatment in the claimed range on a resin substrate before electroless plating. See column 5, line 55 through column 6, line 5.

### *Response to Arguments*

6. Applicant's arguments filed September 3, 2008 have been fully considered but they are not persuasive.

Applicant argues that the cited art does not provide the newly claimed range of UV wavelength. The Examiner disagrees. Harada, as translated by applicant, in paragraph [0007] provides as to the use of UV radiation, "Further, when ultraviolet radiation, particularly, ultraviolet radiation having a wavelength of 253.7 nm, . . .". This indicates that wavelength of 253.7 nm is preferred by Harada, but does not negate the general teaching of "ultraviolet radiation". As discussed in MPEP 2123, "Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. In re Susi, 440 F.2d 442, 169 USPQ 423 (CCPA 1971)." Furthermore, the Examiner has cited Asakura as further indicating that the

range of UV wavelength to be used in a UV pretreatment can be 160-400 nm, depending on the substrate to be used (paragraph [0008]). Applicant refers to the first range of UV wavelength on 200-400 nm in paragraph [0008], of Asakura, but the paragraph goes on to indicate that 160-400 nm can be used. Moreover, 200-400 nm would actually overlap with applicant's claimed range of 150-200 nm, at the point of 200 nm.

As to the test results in Table 1 of the specification, the Examiner notes that as discussed in the rejection above, although applicant asserts unexpected results summarized in Table 1 of the specification, these results are not commensurate in scope with these claims to show that the results occur over the entire claimed range (see MPEP 716.02(d)). For example (1) applicant claims a specific range of UV wavelength, but the examples have no indication of what the wavelength is, (2) applicant claims the range of ozone concentration to be "about 10 ppm or more", but the examples only show the use of 80 ppm, (3) applicant claims a resin material in general, but only uses an ABS substrate in the examples, (4) does not show points just inside and outside the claimed UV wavelength range or ozone concentration. Furthermore, the combination of ozone treatment and UV would be expected to have improved results, as discussed by Harada from the added acceleration of the process and the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). Applicant



also provides a reference figure and discussion as to times of exposure, but these times are also not claimed.

### *Conclusion*

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

8. The Examiner notes that a new Examiner is now examining this case as noted below.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (571) 272-1413. The examiner can normally be reached on M-F(6:00-3:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Katherine A. Bareford/  
Primary Examiner, Art Unit 1792